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EXAMINER	
LEE, SIU M	

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2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,633	COULSON, ALAN JAMES	
	Examiner	Art Unit	
	SIU M. LEE	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 7-8, filed 2/12/2010, with respect to the rejections of claims41-43, and 45 under 35 U.S.C. § 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Henely (US 6,169,770 B1).

Allowable Subject Matter

2. The indicated allowability of claims 30-35 and 37-40 are withdrawn in view of the newly discovered reference(s) to Henely (US 6,169,770 B1). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 30 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henely (US 6,169,770 B1) in view of Yu et al. (US 2004/0136478 A1, hereinafter Yu) and Kriedte et al. (US 2004/0100939 A1, hereinafter Kriedte).

(1) Regarding claim 30:

Henely discloses a method comprising:

receiving a stream of received data (log video 24 in figure 2, column 3, lines 61-62),

passing the stream of received data through a preamble detector arranged to detect preamble symbols (preamble detector circuit 60 analyzes the signal at input 64 to determine if a preamble has been detected, column 5, lines 22-25, the examiner interprets a preamble as a pilot),

when a pilot symbol is detected passing the stream of received data to a receiving apparatus without first passing the received data through the preamble detector (if preamble detection circuit 60 detects the preamble, preamble detector circuit 60 provides a control signal at output 84 to signal path switch circuit 70 and connects receive input 74 to path output 26 in response to receive the control signal from output 84, column 5, lines 27-32, by passing the received signal from 74 to path output 26, the preamble detection circuit 60 is being bypassed),

and wherein the pilot symbol has a length (the preamble is a sequence of four spaced pulses at known widths and known position with respect to each other, column 5, lines 25-26).

Henely fails to disclose (a) passing the stream of received data through a preamble detector that comprises a correlator arranged to detect pilot symbols, and wherein the pilot symbol includes one or more repetitions of known data or pseudo

noise, and (b) passing the stream of received data through an adaptive filter that reduces interference from any narrowband interferer.

With respect to (a), Kriedte discloses a preamble detection algorithm that is based on the correlation between the repeated symbols/codes constituting the preamble (paragraph 0025).

It is desirable to passing the stream of received data through a correlator arranged to detect pilot symbols, and wherein the pilot symbol includes one or more repetitions of known data or pseudo noise because it is a simple and easy implemented method for detecting the preamble. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Kriedte in the method of Henely to simplify and reduce cost of the preamble detection process.

With respect to (b), Yu discloses an equalizer (fast equalizer 28 in figure 3) to reduce interference before a pilot signal correlator (32 in figure 3) (although Yu does not explicitly disclose the fast equalizer is for reducing interference from any narrowband interferer, it is well know in the art that an equalizer is capable for removing narrowband interference (as evidence by Kim et al. (US 6,654,430 B1), column 4, lines 10-14, equalizer 44 removes interference noise such as intersymbol interference and narrowband interference).

It is desirable to have an equalizer to reduce interference from any narrowband interferer because it will generate a clean signal and improve the integrity of preamble detection process. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Yu to place an equalizer before the

preamble detection of Henely and Kriedte to improve the preamble detection of Henely and Kriedte and when the preamble is detected, bypass the preamble detector and the equalizer and passed the received signal to output 26 for further processing in order to reduce power consumption of the preamble detection process.

(2) Regarding claim 41:

Henely discloses a receiver comprising:

a front end arranged to receive data (video digitizer 30 receives a log video signal 24 as shown in figure 2),

a preamble detector 60 in figure 2 arranged to detect pilot symbols in the received data (preamble detector circuit 60 analyzes the signal at input 64 to determine if a preamble has been detected, column 5, lines 22-25, the examiner interprets a preamble as a pilot), and

a logic system (signal path switch 70 in figure 2) arranged to reroute the received data to a receiving apparatus without passing the received data through the preamble detector when a pilot symbol has been detected (if preamble detection circuit 60 detects the preamble, preamble detector circuit 60 provides a control signal at output 84 to signal path switch circuit 70 and connects receive input 74 to path output 26 in response to receive the control signal from output 84, column 5, lines 27-32, by passing the received signal from 74 to path output 26, the preamble detection circuit 60 is being bypassed), and wherein

the pilot symbol has a length (the preamble is a sequence of four spaced pulses at known widths and known position with respect to each other, column 5, lines 25-26).

Henely fails to disclose (a) passing the stream of received data through a preamble detector that comprises a correlator arranged to detect pilot symbols, and wherein the pilot symbol includes one or more repetitions of known data or pseudo noise, and (b) passing the stream of received data through an adaptive filter that reduces interference from any narrowband interferer.

With respect to (a), Kriedte discloses a preamble detection algorithm that is based on the correlation between the repeated symbols/codes constituting the preamble (paragraph 0025).

It is desirable to passing the stream of received data through a correlator arranged to detect pilot symbols, and wherein the pilot symbol includes one or more repetitions of known data or pseudo noise because it is a simple and easy implemented method for detecting the preamble. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Kriedte in the method of Henely to simplify and reduce cost of the preamble detection process.

With respect to (b), Yu discloses an equalizer (fast equalizer 28 in figure 3) to reduce interference before a pilot signal correlator (32 in figure 3) (although Yu does not explicitly disclose the fast equalizer is for reducing interference from any narrowband interferer, it is well know in the art that an equalizer is capable for removing narrowband interference (as evidence by Kim et al. (US 6,654,430 B1), column 4, lines 10-14, equalizer 44 removes interference noise such as intersymbol interference and narrowband interference).

It is desirable to have an equalizer to reduce interference from any narrowband interferer because it will generate a clean signal and improve the integrity of preamble detection process. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Yu to place an equalizer before the preamble detection of Henely and Kriedte to improve the preamble detection of Henely and Kriedte and when the preamble is detected, bypass the preamble detector and the equalizer and passed the received signal to output 26 for further processing in order to reduce power consumption of the preamble detection process.

5. Claims 32-33 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henely (US 6,169,770 B1) in view of Yu et al. (US 2004/0136478 A1, hereinafter Yu) and Kriedte et al. (US 2004/0100939 A1, hereinafter Kriedte) as applied to claims 30 and 41 above, and further in view of Sugiyama (US 5,192,918)

(1) Regarding claim 32 and 43

Henely, Yu and Kriedte discloses all subject matter as discuss in claims 30 and 41 except the adaptive filter uses a delayed stream of the received data delayed by a known length as a reference signal.

However, Sugiyama discloses in figure 4 that using a delay circuit 23 for delaying the input signal to introduce a delay interval L corresponding to the periodic intervals of signal v'k to produce an output (the examiner interprets the output of adaptive filter 13 as a reference signal, column 4, lines 59-68).

It is desirable to use a delayed stream of the received data delayed by a known length as a reference signal because it reduces residual noise (column 2, lines 32-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Sugiyama in the method and apparatus of Henely, Yu, and Kriedte to reduce residual noise in the filter.

(2) Regarding claims 33 and 44:

Sugiyama further disclose that the delay L corresponding to the periodic intervals of signal v'k.

Henely, Yu, Kriedte, and Sugiyama do not explicitly disclose the delay length is longer than the length of the pilot symbol. It would have been obvious to one having ordinary skill in the art at the time of invention was mode to adjust the delay to be longer than the pilot symbol, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Boesch, Eli f.2d 272, 205 USPQ 215.

6. Claims 31 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henely (US 6,169,770 B1) in view of Yu et al. (US 2004/0136478 A1, hereinafter Yu) and Kriedte et al. (US 2004/0100939 A1, hereinafter Kriedte) as applied to claims 30 and 41 above, and further in view of Vandendorpe et al. (US 6,400,781 B1).

Henely, Yu and Kriedte discloses all subject matter as discuss in claims 30 and 41 except an adaptive filter has a number of taps and the number of taps in the adaptive filter is greater than a maximum number of interferers to be cancelled.

However, Vandendorpe discloses that narrowband distortions can be compensated by adapting the taps of the equalizer by enlarging the number of taps in the equalizer (column 2, lines 31-38, therefore, the number of taps of the equalizer has to be greater than the maximum number of narrowband interferer).

It is desirable to have number of taps in the adaptive filter is greater than a maximum number of interferers to be cancelled because it can remove all the narrowband interference and improve the signal integrity. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Vandendorpe in the method and apparatus of Henely, Yu and Kriedte to remove all narrowband interference and improve the signal integrity.

7. Claims 34, 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henely (US 6,169,770 B1) in view of Yu et al. (US 2004/0136478 A1, hereinafter Yu) and Kriedte et al. (US 2004/0100939 A1, hereinafter Kriedte) as applied to claims 30 and 41 above, and further in view of Mellon (US 4,910,521).

(1) Regarding claim 34:

Henely, Yu and Kriedte discloses all subject matter as discuss in claim 30 except the step of detecting the pilot symbol in the correlator comprises detecting a peak in a sliding correlator and, when the peak is detected in the sliding correlator operating a pilot symbol detector to detect the pilot symbol.

However, Mellon discloses detecting a peak in a sliding correlator (convolver 76 and 74 and peak detector 100 and 112 in figure 2, column -, line 60 – column 4, line

19), and when the peak is detected in the sliding correlator operating a pilot symbol detector to detect the pilot symbol (preamble detection circuit 130 in figure 2, column 4, lines 33-38).

It is desirable to detect a peak in a sliding correlator and, when the peak is detected in the sliding correlator operating a pilot symbol detector to detect the pilot symbol because it reduce in cost and increase in terms of reliability (column 2, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Mellon in the method of Henely, Yu and Kriedte to reduce in cost and increase in terms of reliability.

(2) Regarding claim 45:

Henely, Yu and Kriedte disclose all subject matter as discuss in claims 30 and 41 except further comprises a matched filter correlator.

However, Mellon discloses a receiver for detecting of a preamble that further comprises a pilot symbol detector to detect the pilot symbol (preamble matched filter (preamble detection circuit) 130 in figure 2, column 4, lines 33-38).

It is desirable for the system to further comprise a matched filter correlator because it reduce in cost and increase in terms of reliability (column 2, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Mellon in the method of Henely, Yu and Kriedte to reduce in cost and increase in terms of reliability.

(3) Regarding claim 46:

Henely, Yu and Kriedte discloses all subject matter as discuss in claims 45 except when a peak is detected in a sliding correlator operating the matched filter correlator to detect the pilot symbol.

However, Mellon discloses detecting a peak in a sliding correlator (convolver 76 and 74 and peak detector 100 and 112 in figure 2, column 3, line 60 – column 4, line 19), and when the peak is detected in the sliding correlator operating a pilot symbol detector to detect the pilot symbol (preamble detection circuit 130 in figure 2, column 4, lines 33-38).

It is desirable to detect a peak in a sliding correlator and, when the peak is detected in the sliding correlator operating a pilot symbol detector to detect the pilot symbol because it reduce in cost and increase in terms of reliability (column 2, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Mellon in the method of Henely, Yu and Kriedte to reduce in cost and increase in terms of reliability.

8. Claims 35, 47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henely (US 6,169,770 B1) in view of Yu et al. (US 2004/0136478 A1, hereinafter Yu), Kriedte et al. (US 2004/0100939 A1, hereinafter Kriedte), and Mellon (US 4,910,521) as applied to claims 34 and 45 above, and further in view of Nelson et al. (US 5,355,126).

(1) Regarding claims 35 and 47:

Henely, Yu, Kriedte, and Mellon disclose all subject matter as discussed in claims 34 and 45 above except wherein the logic system is arranged to produce a timeout if the pilot symbol is not detected in the matched filter correlator within a predetermined number of matched filter correlator operations.

However, Nelson discloses apparatus and method arranged to produce a timeout if the pilot symbol is not detected in the matched filter correlator within a predetermined number of matched filter correlator operations (to detect the sync code, a sync search window timer is loaded 580. In a manner well known to those skilled in the art, the signal is sampled and correlated for sync code detect 582 and the sync search window timer is decremented 584, if sync is not detected 586 and the sync search window timer does not equal zero 588, a next portion of the signal is sampled and correlated 582 for sync detect 586. If the sync search window timer is decremented to equal zero 588 without sync detect 586, processing returns to start the battery save timer 542 and perform background tasks and wait for the battery save timeout 544, column 20, lines 18-29).

It is desirable to have the logic system is arranged to produce a timeout if the pilot symbol is not detected in the matched filter correlator within a predetermined number of matched filter correlator operations because it will reduce power consumption of the preamble detection process. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Nelson in the method and apparatus of Henely, Yu, Kriedte, and Mellon to reduce power consumption in the preamble detection process.

(2) Regarding claim 48:

Henely, Yu, Kriedte, Nelson and Mellon disclose all subject matter as discussed in above except explicitly disclose when a timeout occurs the sliding window correlator continues operating and when a peak is detected in the sliding window correlator the matched filter correlator begins operating.

However, Mellon discloses using a convolver (74 and 76 in figure 2) and preamble matched filter 130 in figure 2) for detecting a preamble, and Nelson discloses a timeout feature and when a sync signal is not detected in a predetermined period, a timeout will occur; therefore, by the combination of Mellon and Nelson, the convolver of Mellon will continues to operate to search for a peak in peak detector and when a new peak is detected, the preamble matched filter will determine if the a preamble is present.

(3) Regarding claim 49:

With respect to discussion above, Henely discloses when a preamble is detected by a preamble detector, passing the stream of received data to a receiving apparatus without first passing the received data through the preamble detector; Yu discloses using an equalizer (fast equalizer 28 in figure 3) to reduce interference before a pilot signal correlator, and Mellon discloses a preamble detector comprises a convolver with a preamble matched filter. Therefore, by the combination of the teaching of Henely, Yu and Mellon and replace the preamble detector of Henely by the preamble detector of Mellon with the equalizer of Yu, when a preamble is detected by a preamble detector as discloses by Henely, a signal is set to bypass the equalizer and the preamble detector, thus satisfied the limitation.

9. Claims 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henely (US 6,169,770 B1) in view of Yu et al. (US 2004/0136478 A1, hereinafter Yu) and Kriedte et al. (US 2004/0100939 A1, hereinafter Kriedte), Nelson et al. (US 5,355,126), and Mellon (US 4,910,521).

(1) Regarding claim 37:

Henely discloses a method comprising:

receiving a stream of received data (log video 24 in figure 2, column 3, lines 61-62),

passing the stream of received data through a preamble detector arranged to detect preamble symbols (preamble detector circuit 60 analyzes the signal at input 64 to determine if a preamble has been detected, column 5, lines 22-25, the examiner interprets a preamble as a pilot),

when a pilot symbol is detected passing the stream of received data to a receiving apparatus without first passing the received data through the preamble detector (if preamble detection circuit 60 detects the preamble, preamble detector circuit 60 provides a control signal at output 84 to signal path switch circuit 70 and connects receive input 74 to path output 26 in response to receive the control signal from output 84, column 5, lines 27-32, by passing the received signal from 74 to path output 26, the preamble detection circuit 60 is being bypassed),

and wherein the pilot symbol has a length (the preamble is a sequence of four spaced pulses at known widths and known position with respect to each other, column 5, lines 25-26).

Henely fails to disclose (a) wherein the pilot symbol includes one or more repetition of known data, (b) passing the stream of received data through an adaptive filter that reduces interference from any narrowband interferer, (c) the preamble detector comprises a correlator, and when the correlator produces a peak over a threshold value triggering a pilot symbol detector to search for a pilot symbol in the data, (d) triggering a timeout during which the pilot symbol detector will not operate if the pilot symbol detector does not detect a pilot symbol in the filtered data within a predetermined number of operations, and (e) sending a signal that triggers removal of the adaptive filter from a receiver path if the pilot symbol detector detects a pilot symbol in the filtered data within a predetermined number of second correlator operations.

With respect to (a), Kriedte discloses a preamble detection algorithm that is based on the correlation between the repeated symbols/codes constituting the preamble (paragraph 0025).

It is desirable to passing the stream of received data through a correlator arranged to detect pilot symbols, and wherein the pilot symbol includes one or more repetitions of known data or pseudo noise because it is a simple and easy implemented method for detecting the preamble. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Kriedte in the method of Henely to simplify and reduce cost of the preamble detection process.

With respect to (b), Yu discloses an equalizer (fast equalizer 28 in figure 3) to reduce interference before a pilot signal correlator (32 in figure 3) (although Yu does not explicitly disclose the fast equalizer is for reducing interference from any narrowband interferer, it is well know in the art that an equalizer is capable for removing narrowband interference (as evidence by Kim et al. (US 6,654,430 B1), column 4, lines 10-14, equalizer 44 removes interference noise such as intersymbol interference and narrowband interference).

It is desirable to have an equalizer to reduce interference from any narrowband interferer because it will generate a clean signal and improve the integrity of preamble detection process. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Yu to place an equalizer before the preamble detection of Henely and Kriedte to improve the preamble detection of Henely and Kriedte and when the preamble is detected, bypass the preamble detector and the equalizer and passed the received signal to output 26 for further processing in order to reduce power consumption of the preamble detection process.

With respect to (c), However, Mellon discloses detecting a peak in a sliding correlator (convolver 76 and 74 and peak detector 100 and 112 in figure 2, column 3, line 60 – column 4, line 19), and when the peak is detected in the sliding correlator operating a pilot symbol detector to detect the pilot symbol (preamble detection circuit 130 in figure 2, column 4, lines 33-38).

It is desirable to detect a peak in a sliding correlator and, when the peak is detected in the sliding correlator operating a pilot symbol detector to detect the pilot

symbol because it reduce in cost and increase in terms of reliability (column 2, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Mellon in the method of Henely, Yu, and Kriedte to reduce in cost and increase in terms of reliability.

With respect to (d), Nelson discloses apparatus and method arranged to produce a timeout if the pilot symbol is not detected in the matched filter correlator within a predetermined number of matched filter correlator operations (to detect the sync code, a sync search window timer is loaded 580. In a manner well known to those skilled in the art, the signal is sampled and correlated for sync code detect 582 and the sync search window timer is decremented 584, if sync is not detected 586 and the sync search window timer does not equal zero 588, a next portion of the signal is sampled and correlated 582 for sync detect 586. If the sync search window timer is decremented to equal zero 588 without sync detect 586, processing returns to start the battery save timer 542 and perform background tasks and wait for the battery save timeout 544, column 20, lines 18-29).

It is desirable to have the logic system is arranged to produce a timeout if the pilot symbol is not detected in the matched filter correlator within a predetermined number of matched filter correlator operations because it will reduce power consumption of the preamble detection process. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Nelson in the method and apparatus of Henely, Yu, Kriedte, and Mellon to reduce power consumption in the preamble detection process

with respect to (e), with respect to discussion above, Henely discloses when a preamble is detected, passing the stream of received data to a receiving apparatus without first passing the received data through the preamble detector, Yu discloses an equalizer (fast equalizer 28 in figure 3) to reduce interference before a pilot signal correlator, and Nelson discloses if sync is not detected 586 and the sync search window timer does not equal zero 588, a next portion of the signal is sampled and correlated 582 for sync detect 586. Therefore, by the combination of the teaching of Henely, Yu and Nelson, it is obvious that when a preamble is detected within the timeout period, a signal is send to bypass the equalizer and the preamble detector, thus satisfied the limitation.

(2) Regarding claim 38:

Mellon further discloses the pilot symbol detector is a matched filter correlator (preamble detection (preamble matched filter) circuit 130 in figure 2, column 4, lines 33-38).

10. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henely (US 6,169,770 B1) in view of Yu et al. (US 2004/0136478 A1, hereinafter Yu) and Kriedte et al. (US 2004/0100939 A1, hereinafter Kriedte), Nelson et al. (US 5,355,126), and Mellon (US 4,910,521) as applied to claim 37 above, and further in view of Vandendorpe et al. (US 6,400,781 B1).

Henely, Yu, Kriedte, Nelson, and Mellon discloses all subject matter as discuss in claims 30 and 41 except an adaptive filter has a number of taps and the number of taps in the adaptive filter is greater than a maximum number of interferers to be cancelled.

However, Vandendorpe discloses that narrowband distortions can be compensated by adapting the taps of the equalizer by enlarging the number of taps in the equalizer (column 2, lines 31-38, therefore, the number of taps of the equalizer has to be greater than the maximum number of narrowband interferer).

It is desirable to have number of taps in the adaptive filter is greater than a maximum number of interferers to be cancelled because it can remove all the narrowband interference and improve the signal integrity. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Vandendorpe in the method and apparatus of Henely, Yu, Kriedte, Nelson, and Mellon to remove all narrowband interference and improve the signal integrity.

11. Claim 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henely (US 6,169,770 B1) in view of Yu et al. (US 2004/0136478 A1, hereinafter Yu) and Kriedte et al. (US 2004/0100939 A1, hereinafter Kriedte), Nelson et al. (US 5,355,126), and Mellon (US 4,910,521) as applied to claim 37 above, and further in view of Sugiyama (US 5,192,918)

Henely, Yu, Kriedte, Nelson, and Mellon discloses all subject matter as discuss in claims 37 except the adaptive filter uses a delayed stream of the received data delayed by a known length as a reference signal.

However, Sugiyama discloses in figure 4 that using a delay circuit 23 for delaying the input signal to introduce a delay interval L corresponding to the periodic intervals of signal v'k to produce an output (the examiner interprets the output of adaptive filter 13 as a reference signal, column 4, lines 59-68).

It is desirable to use a delayed stream of the received data delayed by a known length as a reference signal because it reduces residual noise (column 2, lines 32-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Sugiyama in the method and apparatus of Henely, Yu, Kriedte, Nelson and Mellon to reduce residual noise in the filter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIU M. LEE whose telephone number is (571)270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chief Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Suit M Lee/
Examiner, Art Unit 2611
5/8/2010

/CHIEH M FAN/
Supervisory Patent Examiner, Art Unit 2611